

CLEAN VERSION OF THE CLAIMS

Claim 1

A method of nondestructive structural integrity monitoring of a subject, wherein said method only uses information obtained through at least one mounted sensor that measures physical properties of said subject, wherein information from sensor(s) is analyzed by computing means to determine presence of priority defined characteristics specific to the subject, wherein said priority defined characteristics are either computed by said computing means at some early time frame or preset or both, and said method does not use any actuators that might send energetic signals to probe said subject, and results of said method do not rely on successful acquisition of acoustic emission or other short term unrepeatable events originated by materials composing said subject.

Claim 2

A digital processing apparatus implementing the method of claim 1 and at least one passive sensor providing measurements to said processing apparatus.

Claim 3

A component or an assembly that has apparatus of claim 2 built-in.

Claim 4

An assembly containing more than one object of claim 3, where in the apparatuses of these objects are linked to form a single network or multiple networks.

Claim 5

A method of claim 1 that provides data that is employed to report unusual usage events or usage patterns.

Claim 6

An implementation of the method of claim 1 that utilizes public informational and/or signal networks to transmit and/or receive information to/from a remote location.

Claim 7

An object that utilizes the method of claim 1 to forecast recommended time of own replacement.

Claim 8 (Canceled)

Claim 9

An implementation of the method of claim 1 where in a single physical node is used to process data from multiple independent subjects.

Claim 10

The apparatus of claim 2 that uses an autonomous energy source.

Claim 11

The apparatus of claim 4 that uses a network as an energy source.